

ASSIGNMENT 5

Textbook Assignment: Chapter 6 - Concrete

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| <p>5-1. What causes concrete to harden?</p> <ol style="list-style-type: none">1. The active ingredients dry out2. The inert ingredients dry out3. The active ingredients combine chemically4. The inert ingredients combine chemically <p>5-2. Concrete has high ability to resist stretching, bending, and twisting.</p> <ol style="list-style-type: none">1. True2. False <p>5-3. What principal factor controls the strength of concrete?</p> <ol style="list-style-type: none">1. Dryness2. Water-cement ratio3. Age4. Reinforcement <p>5-4. The major factor controlling the durability of concrete is its strength.</p> <ol style="list-style-type: none">1. True2. False <p>5-5. If more water is added to a concrete mix than is needed to hydrate the cement, the concrete becomes less</p> <ol style="list-style-type: none">1. porous2. brittle3. fluid4. watertight <p>5-6. The production of good concrete is impossible unless good quality materials are used in the mix, and this mix is properly</p> <ol style="list-style-type: none">1. cured and dried2. puddled and dried3. worked and cured4. fortified and cured | <p>5-7. Portland cement is manufactured from finely ground limestone mixed with which of the following materials?</p> <ol style="list-style-type: none">1. Clay2. Shale3. Marl4. Any of the above <p>5-8. For highway construction, Type III portland cement is sometimes preferred to type I because Type III has which of the following characteristics?</p> <ol style="list-style-type: none">1. Finer finish2. Requires less working3. Shorter curing time4. Longer curing time <p>5-9. What type of cement was developed for use in areas subject to severe frost and ice conditions?</p> <ol style="list-style-type: none">1. Air entrained2. Keene's3. Type V4. Type IV <p>5-10. Aggregate is the material combined with cement and water to make concrete.</p> <ol style="list-style-type: none">1. True2. False <p>5-11. Concrete is denser and stronger when which of the following conditions is met?</p> <ol style="list-style-type: none">1. All voids are filled2. Voids are large and unfilled3. Aggregate particles are not solidly bonded4. Aggregate particles are not coated with a cement-water paste |
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- 5-12. When performing a sieve analysis of aggregate, you should determine the percentage of material retained on the sieve.
1. True
 2. False
- 5-13. When a field test for cleanliness of aggregate shows 1/8 inch of sediment on a sample, the aggregate should be washed because this amount of sediment
1. decreases the workability of concrete
 2. prevents the aggregate from becoming friable
 3. may obstruct hydration and bonding of the cement to the aggregate
 4. will detract from the appearance of the concrete
- 5-14. To prevent aggregate from segregating during stockpiling, you should build up piles in layers by dumping successive loads alongside each other.
1. True
 2. False
- 5-15. In concrete, how is laitance produced?
1. Water collects under the surface of the cement
 2. Cement is hydrated with saltwater
 3. Cement is hydrated with minimum water
 4. Cement is hydrated with excess water
- 5-16. The proportion of air-entraining agent added to a concrete mix should fall within what range?
1. 1% to 2% only
 2. 1% to 3%
 3. 3% to 7%
 4. 8% to 10%
- 5-17. In concrete work, which of the following materials is a generally accepted accelerator?
1. Alkali salts
 2. Fly ash
 3. Calcium chloride
 4. Calcium carbonate
- 5-18. The accepted use for retarders is to increase the rate hydration.
1. True
 2. False
- 5-19. What is the main reason cement should be stored in a dry place?
1. To prevent it from becoming concrete while in storage
 2. To prevent it from setting too fast and producing weak concrete
 3. To prevent it from setting too slow and producing weak concrete
 4. To avoid warehouse pack
- 5-20. When storing sacks of cement in a warehouse, what is the main reason you should sack them close together?
1. So they can draw moisture from each other
 2. To restrict the circulation of air between them
 3. To prevent warehouse pack
 4. To prevent them from getting mixed up
- 5-21. Before using warehouse-packed cement, what should you do to make it lump free?
1. Restack the sacks to allow air to circulate around them
 2. Raise the temperature for 48 hours in the area where the sacks are stored
 3. Roll the sacks around
 4. Cover the sacks for 48 hours with tarpaulins

IN ANSWERING QUESTION 5-22 REFER TO
TEXTBOOK TABLE 6-3.

- 5-22. Your specifications for a driveway call for a 3,000-psi concrete using 1-inch coarse aggregate. How many bags of cement per cubic yard of concrete will you need?
1. 8.4
 2. 7.1
 3. 6.5
 4. 5.8
- 5-23. In a field mix, the number of gallons of water per sack of cement must be increased to allow for the saturated surface-dry condition of the sand.
1. True
 2. False
- 5-24. When available aggregate is 1 1/2 inches, what rule-of-thumb should you use to calculate materials required for a proper concrete mix?
1. Rule 38 only
 2. Rule 41 only
 3. Rule 38 or 41 depending on whether mixing is done by hand or machine
 4. Rule 42

IN ANSWERING QUESTIONS 5-25 THROUGH 5-27,
USE THE APPROPRIATE RULE OF THUMB FOR A
1:2:5 CONCRETE MIX WHEN 2-INCH COARSE
AGGERATE IS USED.

- 5-25. How many bags of cement are required to make 1 cubic yard of concrete?
1. 8
 2. 7 1/2
 3. 6
 4. 5 1/4
- 5-26. How many cubic feet of sand are required to make 1 cubic yard of concrete?
1. 5
 2. 7 1/2
 3. 10 1/2
 4. 12

- 5-27. To make 40 cubic yards of concrete, how many cubic feet of (a) sand and (b) coarse aggregate are required?
1. (a) 500 (b) 1,240
 2. (a) 480 (b) 1,200
 3. (a) 475 (b) 1,180
 4. (a) 420 (b) 1,050
- 5-28. To measure water for hand-mixing concrete, what size bucket should you use?
1. Half-gallon
 2. Gallon
 3. 10-quart
 4. 14-quart
- 5-29. Which of the following units is the most accurate way to measure aggregate?
1. Cubic feet
 2. Pounds
 3. Cubic yards
 4. Gallons
- 5-30. Concrete mixed with just enough water to completely hydrate the cement can negatively affect what concrete characteristic?
1. Tensile strength
 2. Workability
 3. Durability
 4. Compressive strength
- 5-31. For each layer of concrete placed in a mold for a slump test, how many times should you rod the mold?
1. 25
 2. 50
 3. 75
 4. 100
- 5-32. After completing a concrete slump test, you tap the side of the mix and the concrete crumbles apart. What condition exists?
1. Well-proportioned mix
 2. Undersanded mix
 3. Oversanded mix
 4. Fluid or runny mix

- 5-33. When incorrect concrete slump is detected, what action should you take to correct the problem?
1. Decrease or increase the aggregate only
 2. Change the proportions of the fine coarse aggregate only
 3. Either 1 or 2 above
 4. Add water to the batch
- 5-34. A mixture of only water and cement is commonly referred to as
1. mortar
 2. sand-cement grout
 3. neat-cement grout
 4. concrete
- 5-35. The rated capacity of a concrete mixing machine is determined by what factor?
1. The cubic feet of the mixed concrete
 2. The cubic feet of the dry ingredients
 3. The cubic yards of the dry ingredients
 4. The weight of the dry ingredients
- 5-36. In cement batch-plant operations, the aggregate must pass through a weigh box before being discharged into the mixer.
1. True
 2. False
- 5-37. You are to mix a 1:2:4 batch of concrete by hand. After putting part of the sand onto a mixing platform. in what order should you add and mix the other ingredients?
1. Cement, water, aggregate, sand
 2. Cement, sand, water, aggregate
 3. Aggregate, sand, cement, water
 4. Cement, sand, aggregate, water
- 5-38. In a 16-S concrete mixer, what maximum size aggregate can you use?
1. 3/4-in
 2. 1 1/2-in
 3. 3 -in
 4. 4 -in
- 5-39. In a 16-S concrete mixer, when should water be added to the mix?
1. Just before the cement
 2. Just before the sand
 3. Just before the aggregate
 4. After all the dry ingredients have been added
- 5-40. You are to charge the skip of a 16-S concrete mixer. In what order should you add the dry ingredients?
1. Cement, aggregate, sand
 2. Aggregate, cement, sand
 3. Sand, cement, aggregate
 4. Aggregate, sand, cement
- 5-41. When using a large mixing machine, what minimum time should you mix 2 1/3 cubic yards of concrete?
1. 1 min, 15 sec
 2. 1 min, 30 sec
 3. 2 min, 15 sec
 4. 2 min, 45 sec
- 5-42. It is now 12 noon and you just finished pouring concrete. You should make sure inside of the mixing drum is cleaned no later than
1. 1220
 2. 1230
 3. 1300
 4. 1330
- 5-43. When cleaning a mixing drum, you should place the coarse aggregate in the drum and turn for how long?
1. 5 min
 2. 10 min
 3. 15 min
 4. 30 min
- 5-44. When concrete must be discharged more than 4 feet above the level of placement, why should it be dumped into an elephant trunk?
1. To reduce segregation
 2. To prevent spattering
 3. To accurately place it
 4. To ensure workable consistency

- 5-45. It is now 12 noon and you begin mixing concrete in a mixing drum. The concrete should be dumped from the drum no later than what time?
1. 1230
 2. 1300
 3. 1330
 4. 1500
- 5-46. What type of concrete mixer can mix concrete en route to the jobsite?
1. Ready mixer
 2. Portable mixer
 3. Transit-mix truck
 4. Agitator truck
- 5-47. Compared to cast-in-place concrete panels, precast panels have what main advantage(s)?
1. Less forming material is required
 2. Placing the rebar is easier
 3. Thorough filling and vibrating are easier
 4. All of the above
- 5-48. Of the following surfaces, which is best for precast concrete?
1. Earth
 2. Wood
 3. Concrete
 4. Tile
- 5-49. At what point in concrete casting should the bond-breaking agent be applied to a casting surface?
1. Before the edge forms are placed
 2. After the edge forms are placed
 3. After the steel is placed but before final preparation
 4. Just before pouring the concrete
- 5-50. What is the simplest method for pickup of small cast panels?
1. 2 point
 2. 2 x 4 point
 3. 3 point
 4. 4 x 4 point
- 5-51. What is the most common type of brace used in tilt-up concrete construction?
1. Wood
 2. Cable
 3. Angle iron
 4. Tubular
- 5-52. Because of their flexibility and tendency to stretch, cable braces are unsuitable for most projects?
1. True
 2. False